

EXHIBIT A

WORK STATEMENT

GLOSSARY

Specific terms and acronyms used throughout this work statement are defined as follows:

| Acronym | Definition |
|----------------|---|
| Aempfast* | Advanced Energy Management and Power Flow Analysis System Technology |
| Commission | California Energy Commission |
| CPR | Critical Project Review |
| DER | Distributed Energy Resources |
| Energynet | The Silicon Valley Power transmission and distribution network, treated as an integrated whole, with embedded generation and loads responsive to dispatch or system conditions. |
| GE PSLF** | General Electric Positive Sequence Load Flow |
| MWh | Megawatt-hour |
| PIER | Public Interest Energy Research |
| SVMG | Silicon Valley Manufacturing Group |
| SVP | Silicon Valley Power |
| T&D | Transmission and distribution. |
| TAC | Technical Advisory Committee |

* Aempfast is Optimal's new advanced software for analysis and optimization of complex electric power systems. According to Optimal Technologies, Aempfast software is a set of power optimization and management tools that thoroughly and intelligently solves for competing objectives relating to the real physical nature of the power grid. It simultaneously addresses system security, voltage profile, reliability, congestion, minimum loss, minimum generation cost, minimum emissions, and minimum maintenance. Taking into account all of these parameters, Aempfast optimizes, analyzes, and manages generation and network resources to provide the optimum solution within the limitations of the resources currently available.

The Aempfast Analyzer provides load-flow solutions giving the steady-state condition of the network. The Aempfast Optimizer will be used in this study to identify the optimal control settings and/or modifications or additions that optimize performance of the network.

** GE PSLF is the load-flow component of the GE power systems analysis package for power systems modeling. The GE PSLF load flow database describes the positive sequence network, and the GE PSLF load-flow solution gives the steady state condition of the network as described by the database. According to GE, load-flow solutions provided by GE PSLF can adjust tap changers, static Var devices, generators, and direct current inverters to control bus voltages.

Problem Statement

It has been asserted in many forums that small strategically located DER projects, aside from providing benefits to the customer who builds the project, have the potential to improve the operational reliability

and quality of the T&D network serving all customers. Beyond reliability, built in the right place, DER also has the potential to defer, offer new alternatives to, or eliminate the need for T&D network improvements that might be required to remedy deficiencies in the T&D network.

What is missing is an analytical tool that is capable of assessing, simultaneously, the impacts of embedded generation, particularly distribution-connected generation, on the distribution and transmission network. At the distribution level, there has been very little study to determine if DER projects can provide network benefits, therefore they are generally not considered when distribution planning is done. Also, the transmission and distribution systems are analyzed separately, therefore it is not well understood how distribution-connected generation affects the transmission grid. Without an analytical tool that is capable of doing an integrated analysis, it is not possible to fully understand the potential economic value and engineering impacts and benefits of DER projects on both the T&D networks. If a tool is developed that will identify and quantify these potential benefits, T&D planners and policy makers can work together to develop a planning process that will recognize the value of these nonwire projects as potential alternatives to system power problems and standard T&D projects.

Overall Project Goals

The overall goal of this project is to demonstrate an analytical methodology that can identify:

- Where a DER project or group of projects, including distribution-connected DER, can provide specific T&D network benefits;
- The value of those network benefits in engineering and economic terms;
- A suggested set of financial and non-financial incentives to facilitate the development of DER projects, including locational pricing of energy and real and reactive capacity; and
- Value-sharing, rather than cost-shifting incentives for DER projects that are beneficial to the operation of the T&D network, as well as targeted policy initiatives that will facilitate the recognition and development of beneficial DER projects.

For this project, a small municipal utility, SVP, will be used to test this methodology, but this methodology should be applicable and useful to any party seeking to determine the potential performance benefits of DER in a power system, the specific types of DER projects that will achieve those benefits, the most impactful barriers to the implementation of projects that benefit that system, and value-sharing incentives for projects based on those benefits.

This project meets or exceeds all of the following PIER program goals:

- Improving the reliability/quality of California's electricity system by developing an analytical tool that can identify where DER and other nonwire alternatives can be located to help alleviate power quality and T&D capacity and congestion problems in the state; and
- Providing more choices to California consumers by helping overcome the barriers to the deployment of distributed generation.

Technical and Economic Performance Objectives

Develop a methodology to put a value on DER as a core component of a T&D network. The study will have several components that will:

1. Verify that an Energynet dataset for a utility network can integrate both transmission and primary distribution and accept dispatched load sheds and embedded generation and can be used by both GE PSLF and Optimal Technologies' Aempfast.
2. Characterize the condition of the SVP network before the addition of DER projects under present Summer Peak, Winter Peak, Light Load, and future Summer Peak conditions.
3. Characterize two sets of DER additions to improve or optimize network performance. DER additions will be identified by type, size, location on the network, and ordered by contribution to Energynet performance. The first group of DER additions will be created to optimize or improve performance under present Summer Peak conditions; the second will be created to optimize or improve performance under future Summer Peak conditions.
4. Establish Optimal DER Portfolios of specific types of DER projects having specific technical and operational attributes that can measurably improve the performance of the Energynet relative to the other cases.
5. Quantify the operational benefits and avoided network improvements for the Energynet enabled by the Optimal DER Portfolios in both engineering and financial terms. Benefits will be attributed to individual DER projects or groups of projects, in addition to the portfolio as a whole.
6. Determine how the Optimal DER Portfolio can be used to guide policies and design incentives to facilitate the development of real DER projects that enhance T&D network performance.

TASK 1: PROJECT START-UP

Task 1.1 Attend Kick off Meeting

The goal of this task is to identify procedures for communication and reporting project status during the project.

The Contractor shall:

- Attend a “kick off” meeting with the Commission Contract Manager and the Contracts Officer. The technical and administrative aspects of contact startup will be discussed at the meeting. Prior to the kick off meeting, the Commission Contract Manager will provide an agenda to all potential meeting participants.

The administrative portion of the meeting shall include, but not be limited to, the following:

- Terms and conditions of the contract;
 - Roles and responsibilities of both parties
 - Budget changes
 - UCC.1 form filing
 - Invoicing
 - Prior approvals for travel and equipment
 - Confidential deliverables
 - Intellectual property
- Match fund documentation (Subtask 1.2)
- Permit documentation (Subtask 1.3)

The technical portion of the meeting shall include, but not be limited to, the following:

- The Commission Contract Manager’s expectations for accomplishing tasks described in the Work Statement;
- An updated schedule of deliverables (Exhibit B)
- An updated Gantt chart
- Progress reports
- Technical deliverables
- Final report

The Commission Contract Manager shall designate the location of this meeting.

Deliverables:

- Attend kick-off meeting
- An Updated Schedule of Deliverables
- An Updated Gantt Chart

Key Personnel:

Peter Evans

Key Subcontractors:

Steve Schumer

Task 1.2 Document Matching Funds

The goal of this task is to document the match funds for this project.

- The Contractor need not resubmit match fund documentation if it was provided in the Contractor's proposal and the information submitted is still valid. The Contractor, however, shall assist the Commission Contract Manager to locate this proposal information, upon request.
- In the event match fund sources change during the project term, Contractor shall immediately notify the Commission Contract Manager for approval.

Documentation of match fund commitments shall be received, reviewed and approved in writing by the Commission Contract Manager before any PIER funds under this contract are disbursed and PIER-funded work on technical tasks may begin.

The Contractor shall:

Provide the following information about the match funding to be used to conduct this project:

1. Amount and source of each cash match funding, including a contact name, address and telephone number.
2. Description, documented market or book value, and source of each in-kind contribution, including a contact name, address and telephone number.

If the in-kind contribution is equipment or other tangible or real property, Contractor shall identify its owner and provide a contact name, address and telephone number, and the address where the property is located.

3. Written commitment from each source of cash match funding or in-kind contributions that these funds or contributions have been secured or will be secured prior to the date(s) when the funds or in-kind contributions are required for project expenditures.
4. If there are no match funds at the start of the contract, then state such in the letter.

In the event the Contractor has not provided the written match fund commitments for this project by three months after the contract execution date, the Commission may, at its option and in its unfettered discretion, terminate this contract by advising Contractor in writing that the contract will be terminated in thirty (30) calendar days.

Deliverables:

- Letter and documentation confirming matching fund sources.
- Documentation of changes as they occur during the contract term.

Key Personnel:

Peter Evans

Key Subcontractor:

Optimal Technologies

Task 1.3 Identify and Obtain Required Permits

The goal of this task is to obtain all permits required for work completed under this project in advance of the date they are needed to keep the project schedule on track.

The Contractor shall:

- If no permits are required to conduct this project, the Contractor shall state this finding in writing to the Commission Contract Manager.
- Provide the following information about permits required for this project:
 - Type of permit
 - Name, address and telephone number of the permitting jurisdictions or lead agencies
 - Schedule the Contractor will follow in applying for and obtaining these permits
 - A copy of each approved permit
- Submit this information to the Commission Contract Manager at the kick-off meeting. The schedule for obtaining permit(s) will be discussed at the kick-off meeting, and a timetable for submitting the updated lists and the copies of the permit(s) will be developed.
- In all cases, permits must be identified in writing and obtained before any costs related to the use of the permit(s) are incurred for which PIER reimbursement will be requested under this contract.
- Permit expenses are not reimbursable through the contract; therefore, the PIER budget for this task will be zero dollars.

Deliverables:

- A statement that no permits are required or
- A list of all permits required for this project
- Updated list of permits as they change during the contract term.
- A copy of each approved permit.

Key Personnel:

Peter Evans

Key Subcontractor:

None

TASK 2.0 TECHNICAL TASKS

The project's work scope involves the following technical tasks:

Task 2.1 Structure and Meetings of the Technical Advisory Committee

Task 2.2 Development of Base Cases

Task 2.3 Development of DER Additions

Task 2.4 Characterization of the DER Portfolios

Task 2.5 Quantification of Benefits of DER Portfolios

Task 2.6 Assessment of Barriers to Optimal DER Portfolio Projects

Task 2.7 Potential Incentives for Optimal DER Portfolio Projects

Task 2.8 Research Results Workshop

Critical Project Reviews

Critical Project Reviews shall take place at key points in this project. These generally occur at predetermined points to see if the overall project goal is being achieved. The Commission will conduct Critical Project Reviews during or at the conclusion of the following tasks:

Task 2.2 Development of Base Cases

Task 2.5 Quantification of Benefits of DER Portfolios

Critical Project Reviews are meetings between the Contractor, the Commission Contract Manager and other individuals selected by the Commission Contract Manager to provide objective, technical support to the Commission. Meeting participants may include PIER Program Team Lead, Contracts Officer, Commission Technical Staff and Management. The purpose of these meetings is to discuss with the Contractor the status of the project and its progress toward achieving its goals and objectives. These meetings may take place either at the Commission office in Sacramento, or at another reasonable location determined by the Commission Contract Manager and the Contractor.

Before each Critical Project Review meeting, the Contractor shall provide the relevant task deliverable(s) to the Commission Contract Manager and any other designated reviewers sufficiently in advance to permit review of the deliverable document(s) before the review meeting. If not already defined in the Work Statement, the Commission Contract Manager shall specify the contents of the deliverable document(s).

At the Critical Project Review meeting, the Contractor shall present the required technical information and participate in a discussion about the project with the Commission Contract Manager and other meeting attendees, if any.

Following the Critical Project Review meeting, the Commission Contract Manager will determine whether the Contractor is complying satisfactorily with the Work Statement and whether the project is demonstrating sufficient progress toward achieving its goals and objectives to warrant continued PIER financial support for the project.

As an outcome of each Critical Project Review, the Commission Contract Manager will provide a written response within 10 working days to the Contractor indicating his or her conclusions about the project to date. The written response may include a requirement for the Contractor to revise one or more deliverables that were included in the Critical Project Review. After each review, the Commission

Contract Manager may reassess and reallocate the tasks, schedule, deliverables and budget for the remainder of the work including not proceeding with one or more tasks.

If the Commission Contract Manager concludes that satisfactory progress is not being made, this conclusion will be referred to the Commission's Research, Development and Demonstration Policy Committee for its concurrence.

Technical Task Descriptions

Task 2.1 Structure and Meetings of the Technical Advisory Committee

The goal of this task is to establish a TAC to review and provide technical input and perspective to research conducted under this project. The Contractor Project Manager and the Commission Contract Manager shall act as the co-chairs of this committee. Other TAC members shall consist of no less than three, and no more than five, members from utility, Independent System Operator, the Commission, university, and/or industry representatives or experts in the field. The exact composition of members may change as need warrants. The TAC Team will be responsible for reviewing interim products. If requested by the Contractor, TAC members will sign non-disclosure agreements, the terms of which shall be approved by the Commission Contract Manager. TAC meeting materials and minutes will be treated as interim products, available for Commission review, but not as deliverables. Members of the TAC serve at the discretion of the Commission Contract Manager.

The Contractor shall:

- Prepare a draft Potential TAC Member List. This list shall include, but not be limited to, the names, affiliations, and qualifications of at least five potential TAC members.
- Submit the draft Potential TAC Member List to the Commission Contract Manager for review and comment. Once agreement on the draft list has been reached, the final list shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.
- Contact potential TAC members, as approved by the Commission Contract Manager, and request their participation on the TAC Team.
- Prepare a draft Final TAC Member List based upon the individuals who have agreed to participate on the TAC Team
- Submit the draft Final TAC Member List to the Commission Contract Manager for review and comment. Once agreement on the draft list has been reached, the final list shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.
- Prepare draft Subsequent TAC Member Lists as needed. Should any or all of the TAC members leave, the Contractor shall submit lists of potential individuals to replace them to the Commission Contract Manager for written approval, the Contractor shall contact these individuals and request their participation on the TAC Team and then inform the Commission Contract Manager of their acceptance or denial.
- Submit the draft Subsequent TAC Member Lists to the Commission Contract Manager for review and comment. Once agreement on the draft list(s) has been reached, the final list(s) shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.
- Convene meetings of the TAC as directed by with the Commission Contract Manager. Arrange for the time and location, prepare agenda packages and take and prepare minutes from each meeting.

Distribute meeting minutes to the members of the TAC no later than 10 working days after each meeting.

Deliverable:

- Draft Potential TAC Member List
- Final Potential TAC Member List
- Draft Final TAC Member List
- Final TAC Member List
- Draft Subsequent TAC Member Lists(s)
- Final Subsequent TAC Member Lists(s)

Task 2.2 Development of Base Cases

The goal of Task 2.2 is to develop cases characterizing the T&D network before the addition of DER projects. A further goal of Task 2.2 is to model the T&D network as an “Energynet” – that is, create a dataset for the network with integrated transmission and primary distribution, ready for introduction of dispatched load sheds and embedded generation, that can be used by both GE PSLF and Optimal Technologies’ Aempfast. This task will establish a base level of T&D network performance against which the impact of network DER additions may be addressed. A further goal of Task 2.2 is to confirm that GE PSLF and Aempfast can solve such a model. Load flow simulations may fail to solve, or converge, if there are errors in the data or if the model cannot find a network condition that satisfies physical laws and all imposed constraints.

Successful completion of this task will be measured by the creation of partitioned and preprocessed datasets for the present Summer Peak case, the Winter Peak and Light Load cases, and the future Summer Peak case, before any recontrols or the addition of DER resources. These datasets themselves will be available for Commission review, but will not be deliverables. Successful completion of this task will be measured by the completion of load flow results developed from these datasets indicating base case network performance under these conditions.

The Contractor may initiate work in Task 2.3 as soon as the first partitioned and preprocessed dataset is completed.

The Contractor shall:

- Create the Summer Peak Energynet dataset in machine-readable format from engineering and operational data on the network provided by Silicon Valley Power.
- Partition and preprocess the Summer Peak dataset to allow analysis by both GE PSLF and Aempfast. Partitioning and preprocessing is intended to identify and resolve errors and numerical problems with the dataset that would prevent the models from converging.
- Complete base case load flow results for the Summer Peak dataset, indicating base network performance level.
- Create the SVP Winter Peak and Light Load Energynet datasets, through modification of the Summer Peak dataset.

- Partition and preprocess the Winter Peak and Light Load datasets.
- Create the future Summer Peak Energynet dataset in machine-readable format, incorporating anticipated load growth and in-process network additions provided by SVP. SVP's planned network additions will also be identified.

The future Summer Peak dataset will be defined during the study based on a case available from SVP. This case will be defined with enough load growth to create a need for physical improvements to the network, but also near enough in the future to allow high-confidence projections. A candidate case is Summer Peak 2004.

- Partition and preprocess the Future Summer Peak datasets.
- Complete base case load flow results for the Winter Peak, Light Load, and Future Summer Peak cases indicating base network performance level.
- Prepare a draft Base Case Flow Load Results Report. This report shall summarize the results of base case load flows for Summer Peak, Winter Peak, Light Load, and future Summer Peak cases. These results will characterize the condition of the network prior to the addition of DER. The network will be characterized in ways including, but not limited to, its losses, voltage profile, and stability.
- Submit the draft Base Case Flow Load Results Report to the Commission Contract Manager for review and comment. Once agreement on the draft report has been reached, the final report shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.
- Participate in the first Critical Project Review. Preparation of the base cases and the draft Base Load Flow Results Report will be the main topics of discussion.

Deliverables:

- Draft Base Case Load Flow Results Report
- Final Base Case Load Flow Results Report

Key Personnel:

Peter Evans

Key Subcontractors:

Cupertino Electric, William Stephenson, Optimal Technologies

Task 2.3 Development of DER Additions

The goal of Task 2.3 is to identify additions of real, reactive, and real plus reactive capacity that will “optimize” the operation of the network as compared to the Present and Future base cases.

Successful completion of this task will be measured by the identification of a recommended set of DER additions for the present Summer Peak case and the future Summer Peak case, selected for their ability to improve performance of the Energynet. The DER additions for the present Summer Peak case will have been evaluated under Winter Peak and Light Load conditions and adapted as appropriate.

Meeting this goal helps to achieve the project objectives by creating a set of DER additions, posited to improve network performance, and testing them for their adaptability to alternative load conditions.

The Contractor shall:

- Create a recommended set of DER additions to the Energynet for the present Summer Peak case. The recommended DER additions will be identified by type, size, location on the network, and ordered by contribution to Energynet performance under Summer Peak conditions. These results will also include the greatest performance improvement that can be achieved through recontrol of the network (i.e. without any network additions). This is a multi-step process involving the use of the Aempfast Optimizer comprised of the following steps:
 - The network shall be optimized first for recontrols, with no network additions.
 - The network shall be sequentially optimized to find and incorporate the most beneficial network additions. Each network addition benefits the network incrementally, but also changes it; thus, this process may include a great many reoptimization steps to achieve the greatest improvement in network performance and to identify those additions required to achieve that improvement. Based on prior work, it is anticipated that for this project, an "optimal" network condition will be defined specifically as one that simultaneously minimizes real and reactive power losses with flow violations and keeps voltage violations to a minimum.
 - Network additions include real capacity (representing dispatched demand reductions, or load sheds), reactive capacity (representing capacitors), and real plus reactive capacity (representing generation). Contractor may limit, with the Commission Contract Manager's prior written approval, allowable additions of load sheds and new generation may be limited. These limits are anticipated to be to 2-5% of peak load for load sheds and the maximum loading of the feeder under Light Load conditions for new generation to avoid export.
- Assess the performance of the set of recommended additions under Winter Peak and Light Load conditions, and make adjustments in the set of recommended additions as appropriate for operation under alternative load conditions.
- Create a recommended set of DER additions to the Energynet for the future Summer Peak case. The recommended DER additions will be identified by type, size, location on the network, and ordered by contribution to performance under Summer Peak conditions. These results will also include the greatest performance improvement that can be achieved through recontrol of the network (i.e., without any network additions other than those included in the base case). This is a multi-step process analogous to the process for the present Summer Peak case. If required, an additional step will be added to allow the addition of new lines and import capacity (in addition to load sheds, capacitors, and generation).
- Compare the future case DER additions against the anticipated additions in the utility's capital plan.
- Prepare a draft Recommended DER Additions Report. This report shall include recommended DER additions to the Energynet for both present and future Summer Peak cases.
- Submit the draft Recommended DER Additions Report to the Commission Contract Manager for review and comment. Once agreement on the draft report has been reached, the final report shall be

submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.

Deliverables:

- Draft Recommended DER Additions Report
- Final Recommended DER Additions Report

Key Personnel:

Peter Evans

Key Subcontractors:

Optimal Technologies

Task 2.4 Characterization of DER Portfolios

The goal of Task 2.4 is to characterize the recommended network capacity additions (real capacity, reactive capacity, and real plus reactive capacity) from Task 2.3 as a portfolio of specific DER projects. These projects will consist of dispatchable load sheds or demand side management, capacitors, and generators having specific physical and operational attributes.

An example of a fully-characterized Optimal DER Portfolio project might be a generator of a certain size, interconnected on a particular feeder, at a particular voltage, operating under a specified control scheme at different specified power levels and power factors under each of Summer Peak, Winter Peak, and Light Load conditions.

Task 2.4 will also include validation of the performance improvements of the recommended DER additions from Task 2.3.

Meeting this goal accomplishes one of the key objectives of this study – specifically, the identification of that set of hypothetical DER projects that would most improve performance of the Energynet. Characterizing capacity additions as DER projects with specific physical attributes and operating profiles enables an evaluation of the siting requirements for these projects and an assessment of the barriers they would face.

The Contractor shall:

- Characterize a portfolio of DER projects for the present Summer Peak case from the results of, and based on the recommended DER additions from, Task 2.4. The network performance improvement yielded by these recommended additions will be validated using new load flow runs for comparison with the base cases from Task 2.2. Operability of these additions under alternative load conditions will be verified through Winter Peak and Light Load flow runs. Results will include an assessment of the operational improvement achieved through recontrols alone vs. improvements from DER additions. Operational requirements for DER projects will be derived from analysis of the performance of the network with DER additions under Winter Peak and Light Load conditions.
- Characterize the changes to the portfolio of DER projects for the future Summer Peak case from the results and based on the recommended DER additions from Task 2.4. The network performance improvement yielded by these recommended additions will be validated using new load flow runs for comparison with the base cases from Task 2.2. Results will include an assessment of the operational improvement achieved through recontrols alone vs. improvements from DER additions. Operational

requirements for DER projects will be derived from analysis of changes in the performance of the network with DER additions from present Summer Peak conditions and future Summer Peak conditions. Results will also include an assessment of the relative ability of recontrols, DER additions, and line and import additions to handle anticipated load growth in the future case.

- Prepare a draft Load Flows Results Report. This report shall include results of load flows for Summer Peak, Winter Peak, Light Load, and future Summer Peak cases with DER additions. These results will characterize the change in the condition of the network due to the addition of DER in terms including, but not limited to, reduced losses, improved voltage profile, and improved stability. This report shall also include both a listing of Optimal DER Portfolio projects for the present Summer Peak case and an itemization of changes to the Optimal DER Portfolio for future Summer Peak conditions.
- Submit the draft Load Flows Results Report to the Commission Contract Manager for review and comment. Once agreement on the draft report has been reached, the final report shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.

Deliverables:

- Draft Load Flows Results Report
- Final Load Flows Results Report

Key Personnel:

Peter Evans

Key Subcontractors:

Cupertino Electric, William Stephenson, & Optimal Technologies

Task 2.5 Quantification of Benefits of DER Portfolios

The goal of Task 2.5 is to quantify the operational benefits and avoided network improvements for the Energynet enabled by the Optimal DER Portfolios, both in engineering terms and in financial terms. Seasonal and load variation of the operational benefits and avoided network improvements of Optimal DER Portfolios will be assessed. Where possible, benefits will be attributed to individual DER projects or groups of projects, in addition to the portfolio as a whole.

An example of the quantification of network benefits might be the MWh reduction in losses under each of Summer Peak, Winter Peak and Light Load conditions attributable to the Optimal DER Portfolio. An example of the pricing of network benefits might be the value of these reductions given the market price per MWh of energy required to replace these losses under Summer Peak, Winter Peak, and Light Load conditions.

The Contractor shall:

- Summarize the operational benefits and avoided network improvements for the Energynet enabled by the Optimal DER Portfolio for the present Summer Peak case under Summer Peak, Winter Peak, and Light Load conditions in engineering terms.
- Value the operational benefits and avoided network improvements enabled by the Optimal DER Portfolio for the present Summer Peak case under Summer Peak, Winter Peak, and Light Load conditions in financial terms. Financial equivalents for commodities will be priced at an estimate of

their cost or market value. Financial equivalents of avoided improvements will be priced based on representative unit costs.

- Summarize the operational benefits and avoided network improvements for the Energynet enabled by the Optimal DER Portfolio for the Future Summer Peak case in engineering terms.
- Value the operational benefits and avoided network improvements enabled by the Optimal DER Portfolio for the Future Summer Peak case in financial terms. Financial equivalents for commodities will be priced at an estimate of their cost or market value. The Commission may be one source for information to support this analysis. Financial equivalents of avoided improvements will be priced based on representative unit costs.
- Prepare a draft Network Benefits Report. This report shall be submitted to the Commission Contract Manager for review at least 15 working days prior to the second Critical Project Review. This document will be one of the main topics for discussion at the Critical Project Review. This report shall include, but not be limited to, the following:
 - Summary of network benefits from Optimal DER Portfolio under present conditions, taking into account variation of load among Summer Peak, Winter Peak and Light Load conditions;
 - Value of network benefits from Optimal DER Portfolio under present conditions, taking into account variation of load among Summer Peak, Winter Peak and Light Load conditions;
 - Summary of network benefits from Optimal DER Portfolio under future conditions; and
 - Value of network benefits from Optimal DER Portfolio under future conditions.
- Participate in the second Critical Project Review.
- Modify this draft Network Benefits Report in accordance with comments received during the Critical Project Review. The final version of this document shall be submitted to the Commission Contract Manager within 10 working days after the Critical Project Review. The Commission Contract Manager shall send written notification of approval to the Contractor within 10 working days after receipt. Key elements from this document shall be included in the Final Report for this project.

Deliverables:

- Draft Network Benefits Report
- Final Network Benefits Report

Key Personnel:

Peter Evans

Key Subcontractors:

Cupertino Electric & William Stephenson

Task 2.6 Assessment of Barriers to Optimal DER Portfolio Projects

Having identified the most beneficial DER projects for the Energynet in the previous steps, the goal of Task 2.6 is to identify those specific regulatory and commercial barriers having the greatest impact on the those DER projects.

En route to identifying these barriers, Task 2.6 will include the completion of a summary of all applicable regulatory and siting requirements for the Optimal DER Portfolio projects and a high-level validation of the siting feasibility projects in the Optimal DER Portfolio.

Successful completion of this task will be measured by completion of a summary of the regulatory and siting requirements for the Optimal DER Portfolio projects, a high-level validation of the siting feasibility projects in the Optimal DER Portfolio, and an assessment of the regulatory inconsistencies and barriers that could obstruct the implementation of Optimal DER Portfolio projects.

Meeting this goal accomplishes the objective of demonstrating the use of the “Optimal DER Portfolio” methodology to focus initiatives for removal of barriers to DER projects upon those barriers having the greatest impact on the most beneficial projects.

The Contractor shall:

- Survey interconnection requirements for Optimal DER Portfolio projects based on their size, location, and operating profile.
- Summarize environmental siting requirements for Optimal DER Portfolio projects based on their size, location, and operating profile.
- Summarize land use and zoning requirements for and policies affecting Optimal DER Portfolio projects based on their location, size, and operating profile.
- Survey past DER project experiences for barriers and lessons-learned.
- Evaluate interconnection, environmental, and land use requirements for inconsistencies and barriers to successful implementation of Optimal Portfolio DER projects.
- Perform an assessment of results for energy, environmental, and land use policy implications and interplay with other SVMG member-driven initiatives.
- Prepare a draft Optimal DER Portfolio Barriers Report. This report shall summarize interconnection, environmental, and land use siting requirements for Optimal DER Portfolio projects and identify potential barriers and implications for Optimal Portfolio DER projects.
- Submit the draft Optimal DER Portfolio Barriers Report to the Commission Contract Manager for review and comment. Once agreement on the draft report has been reached, the final report shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.

Deliverables:

- Draft Optimal DER Portfolio Barriers Report
- Final Optimal DER Portfolio Barriers Report

Key Personnel:

Peter Evans

Key Subcontractors:

Roy Skinner, Rita Norton Associates, & Silicon Valley Manufacturing Group energy, environmental, and land use staff.

Task 2.7 Potential Incentives for Optimal DER Portfolio Projects

The goal of Task 2.7 is to develop suggested mechanisms that allow DER project sponsors (whether customers, utilities, or other third parties) to realize the financial value of network benefits their DER projects provide and incorporate this value into DER projects. The dollar value of network benefits that would be provided by Optimal DER Portfolio projects developed under Task 2.5 and the potential barriers identified under Task 2.6 provide the context for financial and non-financial mechanisms that would result in value-sharing incentives for beneficial DER projects.

Meeting this goal accomplishes the objective of illustrating how the “Optimal DER Portfolio” methodology developed in this study can be used to create value-sharing (rather than cost-shifting) incentives for real DER projects that are beneficial to the operation of the T&D network, as well as targeted policy initiatives that will facilitate beneficial DER projects.

The Contractor shall:

- Survey DER incentives implemented or under consideration in other jurisdictions.
- Survey Federal Energy Regulatory Commission Regional Transmission Organization-proceeding matters that affect DER.
- Survey land use controls and incentives related to infrastructure that could guide DER incentives.
- Develop suggested financial incentives for beneficial DER projects, including locational pricing of energy and real and reactive capacity.
- Develop suggested non-financial incentives for beneficial DER projects.
- Assess the policy implications of Tasks 2.5 and 2.6 and the above bullets for future energy and land use initiatives in Silicon Valley.
- Prepare a draft Incentives Report. This report shall summarize the suggested financial and non-financial incentives to facilitate beneficial DER projects.
- Submit the draft Incentives Report to the Commission Contract Manager for review and comment. Once agreement on the draft report has been reached, the final report shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt.

Deliverables:

- Draft Incentives Report
- Final Incentives Report

Key Personnel:

Peter Evans

Key Subcontractors:

Roy Skinner, Rita Norton Associates, & Silicon Valley Manufacturing Group energy, environmental, and land use staff.

Task 2.8 Research Results Workshop

The goal of this task is to conduct a workshop to make the knowledge gained, experimental results and lessons learned available to the various researchers and decision-makers in industry and government, and to both communicate and identify ways in which the methodology developed in this study can be applied more broadly and developed further.

Meeting this goal helps to achieve the project objectives by disseminating information that will allow utilities, DER project developers, regulators, policy makers and other stakeholders the opportunity to discuss the development of a new methodology that allows a utility system to be analyzed to see if there is value in adding DER projects to improve efficiency or reduce capital expenditure.

The Contractor shall:

- Prepare a draft Workshop Package. This Workshop Package shall include, but not be limited to, the following:
 - Workshop agenda
 - Workshop location
 - Workshop announcement
 - Potential list of announcement recipients
- Submit the draft Workshop Package to the Commission Contract Manager for review and comment. Once agreement on this package has been reached, the final Workshop Package shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt of the final version.
- Mail workshop announcements to those on the approved list and convene workshop.
- Act as co-chair of the workshop along with the Commission Contract Manager.
- Publish the proceedings of the workshop, including the list of workshop attendees, under the guidance of the TAC. A draft version shall be submitted to the Commission Contract Manager for review and comment. Once agreement on this draft publication has been reached, the final publication shall be submitted to the Commission Contract Manager for written approval, which shall be provided within 10 working days of receipt of the final version.

Deliverables:

- Draft Workshop Package
- Final Workshop Package
- Draft Published Workshop Proceedings
- Final Published Workshop Proceedings

Key Personnel:

Peter Evans

Key Subcontractors:

Cupertino Electric, William Stephenson, Optimal Technologies

TASK 3.0 REPORTING TASKS

All **public** reports shall be delivered to the Commission Accounting Office address listed on Exhibit D.

All **confidential** reports shall be sealed and marked “Confidential Deliverable” and submitted to the Contracts Officer listed on Exhibit D.

Task 3.1 Monthly Progress Reports

The objective of this task is to periodically verify that satisfactory and continued progress is made towards achieving the research objectives of this program.

The Contractor shall prepare a written Monthly Progress Report to the Commission Contract Manager by the 30th of each month, starting after contract execution and shall continue each following month until the Final Report has been accepted by the Commission Contract Manager. Attachment A-1 provides the format and content requirements for these reports.

Deliverables:

- Monthly Progress Reports

Key Personnel:

Peter Evans

Key Subcontractors:

None

Task 3.2 Final Report

The Final Report shall be a public document. If the Contractor has obtained confidential status from the Commission and will be preparing a confidential version of the Final Report as well, the Contractor shall perform the following tasks for both the public and confidential versions of the Final Report. Attachment A-2 provides the format and content requirements.

Subtask 3.2.1 Final Report Outline

The Contractor shall:

- Prepare an outline of the Final Report describing the original purpose, approach and results of the project. The Commission Contract Manager shall provide the suggested format for this outline.
- Submit the final report outline to the Commission Contract Manager for review and approval. Once agreement on the outline has been reached, it shall be submitted to the Commission Contract Manager within 5 working days. The Commission Contract Manager shall provide written approval within 10 working days of receipt.

Deliverables:

- Final Report Outline

Subtask 3.2.2 Draft Final Report

The Contractor shall:

- Prepare the Draft Final Report for the project. The format of the report shall follow the approved outline.
- Submit the draft final report to the Commission Contract Manager for review and comment. The Commission Contract Manager will provide written comments within 20 working days of receipt. The Contractor shall revise the draft final report incorporating the Commission Contract Manager's corrections and required changes. Once agreement on the draft final report has been reached, the Commission Contract Manager shall provide written approval within 10 working days.

Deliverables:

- Draft Final Report

Subtask 3.2.3 Final Report

The Contractor shall:

Submit the final report within 10 working days of receipt of the approval letter. The Contractor shall submit two unbound copies and one electronic copy of the Final Report to the Commission Contract Manager.

Deliverables:

- Final Report

Key Personnel:

Peter Evans

Key Subcontractors:

None



Task 3.3 Final Meeting

A final meeting for contract closeout will be attended by, at a minimum, the Contractor, the Commission Contract Manager and the Commission Contract Officer. The technical and administrative aspects of contract closeout will be discussed at the meeting, which may be two separate meetings at the discretion of the Commission Contract Manager.

The technical portion of the meeting shall present findings, conclusions, and recommended next steps (if any) for the project. The Commission Contract Manager will determine the appropriate meeting participants.

The administrative portion of the meeting shall be a discussion with the Commission Contract Manager and the Contracts Officer about the following contract closeout items:

- What to do with any state-owned equipment (Options)
- Need to file UCC-1 form re: Commission's interest in patented technology
- Commission's request for specific "generated" data (not already provided in contract deliverables)
- Need to document Contractor's disclosure of "subject inventions" developed under the contract
- "Surviving" contract provisions, such as repayment provisions
- Final invoicing and release of retention

Deliverables:

- Meeting participation
- Written documentation of meeting agreements and all pertinent information.

Key Personnel:

Peter Evans

Key Subcontractors:

None